REMARKS

In the Office Action, claims 1-16 are rejected under 35 U.S.C. § 102 and/or § 103. More specifically, claims 1, 2 and 4-8 have been rejected under 35 U.S.C. § 102 in view of Schambye et al. and further in view of U.S. Patent No. 5,296,242 ("Zander"); claims 6-8 have been rejected under 35 U.S.C. § 102 in view of U.S. Patent No. 4,663,166 ("Veech") and further in view of Zander; claims 1-10 have been rejected under 35 U.S.C. § 103 in view of Schambye et al. and further in view of Zander; and claims 6-16 have been rejected under 35 U.S.C. § 103 in view of Veech and further in view of Zander. Applicants believe that the anticipation and obviousness rejections have been overcome in view of the amendments and at least for the reasons set forth below.

Of the pending claims at issue with respect to the anticipation and obviousness rejections, claims 1, 6, 10 and 11 are the sole independent claims. Claim 1 recites a peritoneal dialysis solution that includes bicarbonate at a level of less than or equal to 30 mM/L, a carbon dioxide partial pressure that is less than 60 mm/Hg, and at least one weak acid, such as lactate, and not including pyruvate, wherein the weak acid ranges from approximately 15 mEq/L to approximately 20 mEq/L.

Claim 6 recites a peritoneal dialysis solution. The dialysis solution includes, in part, bicarbonate at 20 mEq/L to 30 mEq/L, a weak acid at 10 mEq/L to 20 mEq/L and a carbon dioxide partial pressure that is less than 60 mmHg wherein the weak acid is at least one acid, such as lactate, and not including pyruvate as further defined in claim 6. Claim 10 recites a peritoneal dialysis solution that includes, in part, bicarbonate and weak acid concentrations as defined in claim 6 and further includes a carbon dioxide partial pressure that is substantially similar to the carbon dioxide partial pressure of a normal subject's blood and the solution has a pH of approximately 7.0 to about 7.4.

Claim 11 recites a method for correcting metabolic acidosis in a dialysis patient. The method includes administering to the patient a peritoneal dialysis solution that includes, in part, bicarbonate at 20 mEq/L to 30 mEq/L and a weak acid at 10 mEq/L to 20 mEq/L wherein the weak acid is at least one acid, such as lactate, and not including pyruvate. The peritoneal dialysis solution also includes a carbon dioxide partial pressure that is substantially similar as that found in the patient's blood.

The present invention provides peritoneal dialysis solutions that are biochemically balanced to correct metabolic acidosis associated with chronic renal failure in a more physiological manner. In this regard, the peritoneal dialysis solutions of the present invention have a physiological pH and contain bicarbonate at a concentration that is found in blood involved in diffusive transport of solutes with dialysis fluid. This will block the loss of bicarbonate during peritoneal dialysis, which is the case with known solutions. Additionally, the solutions contain carbon dioxide at a partial pressure that is similar to a partial pressure of carbon dioxide found in the blood capillaries. The peritoneal dialysis solutions also contain a weak acid at a specified amount needed to neutralize acid generated from endogenous metabolism. See, Specification, page 4, lines 7-22.

Even if properly combinable, Applicants believe that the cited art is distinguishable from the claimed invention. At the outset, Applicants believe that the Patent Office has improperly relied on a secondary reference, namely, Zander, in support of each of the anticipation rejections, and thus, Applicants respectfully submit that the anticipation rejections should be withdrawn based on at least this reason. Indeed, the Patent Office rejects the same claims in view of the same references in separate obviousness rejections. Clearly, this suggests that the Patent Office has intended to reject claims 1, 2 and 4-8 under 35 U.S.C. § 103 and not § 102.

Even assuming that the Patent Office can rely on Zander in support of the anticipation rejections, Applicants respectfully submit that the cited references fail to disclose the claimed invention, both explicitly and inherently. For example, nowhere does either Schambye or Veech disclose a peritoneal dialysis solution that combines bicarbonate and a weak acid at a specified concentration in addition to a specified amount of carbon dioxide partial pressure effective in maintaining an acid-base balance in dialysis patients as required by the claimed invention. Indeed, the cited references effectively teach away from the claimed peritoneal dialysis solutions where both Schambye (see, Table I) and Veech (see, Table VIII) require lactate in addition to pyruvate. Again, the peritoneal dialysis solutions as claimed do not include pyruvate. Therefore, the anticipation rejections should be withdrawn based on at least these reasons.

In the Office Action, claims 1-10 are rejected as allegedly obvious in view of Schambye and further in view of Zander. Of these claims, claims 1, 6 and 10 are the sole independent claims that each recite a peritoneal dialysis solution as previously discussed. Applicants believe

that Schambye and Zander, even if properly combinable, fail to disclose or suggest the peritoneal dialysis solutions as claimed. Again, Schambye effectively teaches away from the claimed peritoneal dialysis solutions where it provides the use of lactate in addition to pyruvate.

Further, Schambye fails to address the problem of maintaining the acid-base balance of the patient and further to correct the problem of metabolic acidosis associated with end stage renal disease. In contrast, the claimed peritoneal dialysis solutions includes specified amounts of bicarbonate and at least one weak acid, such as lactate, to provide a total buffer concentration that can effectively maintain the acid-base balance in a peritoneal dialysis patient suffering from end stage renal disease as supported by the Declaration of Leo Martis, Ph.D ("Declaration") at ¶7. Applicants previously submitted the Declaration during the examination of the present application, such as Exhibit E of Applicants' Appeal Brief submitted on August 6, 2003. For convenience, Applicants are submitting concurrently with this Amendment another copy of the Declaration.

Instead, Schambye is directed toward the optimization of dialysis solutions with respect to their effect on normal human polymorphonuclear granulocytes in vitro without any consideration as to the ability of these solutions to maintain an acid-base balance in the patients, and further to correct metabolic acidosis. See, Schambye, for example, p. S116, col. 1, ¶¶1-2. Indeed, Schambye further purports optimal conditions at a pH 7.0 and at a bicarbonate and lactate concentration of 20 mM and 12.5 mM, respectively. See, Schambye, p. S116, ¶3. Clearly, this contrasts the claimed solutions that include up to and including 30 mEq/L of bicarbonate (e.g., 25 mM/L as required by Claim 2) and 20 mEq/L of a weak acid. Therefore, *Schambye* on its own is clearly distinguishable from the claimed invention.

Moreover, Applicants believe that the Patent Office has improperly relied on *Zander* to remedy the deficiencies of *Schambye*. While *Zander* does teach a dialysis solution with a carbon dioxide partial pressure of about 40 mmHg, a person skilled in the art of peritoneal dialysis would readily recognize that the solutions proposed by *Zander* would not be effective in maintaining an acid-base balance of dialysis patients.

For example, the "preliminary research" disclosed in *Zander* at column 2, lines 35-39, provides a solution with a bicarbonate concentration and carbon dioxide partial pressure that corresponds to physiological blood plasma values. However, column 2 of the *Zander* reference

does not disclose the use of a weak acid, let alone amounts thereof, in combination with the bicarbonate concentration and carbon dioxide partial pressure. While the *Zander* solution as thus disclosed may prevent the loss of bicarbonate from the body, one skilled in the art would readily recognize that this solution would be deficient in terms of neutralizing the hydrogen ions generated endogenously by the dialysis patient as a result of protein metabolism. This is supported by the Declaration of Dr. Martis at ¶4.

Further, the weak acid preferred by *Zander* is acetic acid/acetate at a concentration of 27.2 mmole/l as disclosed in the combined solution at column 6. However, the use of a weak acid, let alone acetate, in this high concentration is problematic. By utilizing a weak acid concentration that is too high (e.g., 27.2 mmole/l), *Zander* teaches a solution that is incapable of maintaining the acid-base balance as supported by the Declaration of Dr. Martis at ¶¶4-6. Moreover, it has been known for over 10 years that acetate damages the peritoneal membrane, thus causing loss of ultrafiltration as further supported by the Declaration of Dr. Martis at ¶6.

Based on at least these reasons, Applicants believe that one skilled in the art would not look to *Zander* for guidance in designing a peritoneal dialysis solution as claimed. Indeed, *Zander* fails to provide a solution with a buffer content capable of maintaining the acid-base balance, and further *Zander* promotes the use of acetate as previously discussed. In contrast, the claimed peritoneal dialysis solutions provide a unique combination of two buffers (bicarbonate and a weak acid that does not include acetic acid nor pyruvate) which is both safe and effective as further supported by the Declaration of Dr. Martis at ¶¶7-10. Therefore, Applicants believe that the Patent Office has improperly relied on *Zander* in support of the obviousness rejection.

Based on at least these reasons, Applicants do not believe that one skilled in the art would be inclined to modify Schambye in view of Zander to provide the peritoneal dialysis solutions as claimed. Therefore, Applicants believe that Schambye and Zander, even if combinable, fail to disclose or suggest and thus fail to render obvious claims 1-10.

The Patent Office also rejects claims 6-16 under 35 U.S.C. § 103 as allegedly obvious in view of Veech and further in view of Zander. Of these claims, claims 6, 10 and 11 are the sole independent claims. Claims 6 and 10 recite peritoneal dialysis solutions as previously discussed. Claim 11 recites a method for correcting metabolic acidosis in a dialysis patient that administers a peritoneal dialysis solution to the patient as previously discussed. Again, the claimed

peritoneal dialysis solutions provide a unique combination of two buffers (bicarbonate and a weak acid that does not include acetic acid and nor pyruvate) which is both safe and effective in correcting for metabolic acidosis.

Even if properly combinable, Applicants believe that Veech and Zander are distinguishable from the claimed invention. At the outset, Applicants believe that the Patent Office has improperly relied on Zander at least for substantially the same reasons as discussed above, and thus, the obviousness rejection in view of same should be withdrawn.

Even assuming that Zander can be properly combined, Applicants believe that its teaching is insufficient to remedy the deficiencies of Veech. Again, Veech effectively teaches away from the claimed peritoneal dialysis solutions and methods of correcting metabolic acidosis that utilize same where Veech provides a solution that includes lactate in addition to pyruvate. See, Veech, Table VIII.

Further, Veech fails to disclose or suggest a peritoneal dialysis solution that has a two buffer system and that is capable of maintaining the acid-base balance in a long term dialysis patient. Indeed, the bicarbonate and weak acid concentration ranges taught by Veech (e.g., 0 to 55 mmole/l) are too broad and cover too many inoperative solutions that would result in metabolic acidosis or metabolic alkalosis if used for long-term peritoneal dialysis solutions. See, Veech, Table VIII. Again, the claimed invention recites peritoneal dialysis solutions that are biochemically balanced to correct metabolic acidosis associated with chronic renal failure.

Based on at least these reasons, Applicants believe that Veech and Zander fail to disclose or suggest the claimed invention. Therefore, Applicants believe that Veech and Zander, even if combinable, fail to render obvious claims 6-16. Accordingly, Applicants respectfully request that the obviousness rejection be withdrawn.

Applicants note that changes have been made to claims 6, 10 and 11 regarding the amount of dextrose, calcium, magnesium and weak acid concentrations. Applicants submit that these changes were made for clarification purposes and further submit that the changes should not be construed as narrowing and/or disclaiming any claimed subject matter in view of same.

For the foregoing reasons, Applicants respectfully submit that the present application is in condition for allowance and earnestly solicit reconsideration of same.

Respectfully submitted,

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